CLAIMS

1. A cruise control system for a vehicle, comprising:

a throttle;

a controller that determines an open-loop speed compensation factor, that calculates a closed-loop speed compensation factor, that determines a throttle area based on said open-loop speed compensation factor and said closed-loop speed compensation factor and that operates the throttle based on said throttle area.

2. The cruise control system of claim 1, further comprising a manifold absolute pressure (MAP) sensor that sends a pressure signal to said controller, wherein said controller adjusts said throttle area based on said pressure signal.

3. The cruise control system of claim 1, further comprising:

a manifold air flow (MAF) sensor that sends a MAF signal to said controller; and

a vehicle speed sensor that sends a vehicle speed signal to said controller, wherein said open-loop speed compensation factor is based on said MAF signal and said vehicle speed signal.

4. The cruise control system of claim 1, wherein said closed-loop speed compensation factor is based on an integral term and a proportional term that are calculated by said controller.

5. The cruise control system of claim 4, wherein said proportional term is determined based on a proportional coefficient and an error.

6. The cruise control system of claim 5, wherein said proportional coefficient is determined from a look-up table based on a vehicle speed signal and a manifold air flow (MAF) signal.

7. The cruise control system of claim 5, wherein said error is based on said cruise control mode.

8. The cruise control system of claim 7, wherein when said cruise control mode is engaged, said error is a difference between a vehicle speed and a cruise speed.

9. The cruise control system of claim 7, wherein when said cruise control mode is one of a group comprising acceleration from engaged and coast, said error is a sum of a speed error and an acceleration error.

10. The cruise control system of claim 7, wherein when said cruise control mode is overspeed resume, said error is a difference between a speed error and an acceleration error.

11. The cruise control system of claim 7, wherein when said cruise control mode is one of a group comprising acceleration standby enabled and resume, said error is equal to an acceleration error.

12. The cruise control system of claim 7, wherein when said cruise control mode is one of a group comprising tap-up and tap-down, said error is equal to a sum of a speed error and a timed acceleration error.

13. The cruise control system of claim 1, wherein said controller determines whether an enable is flagged, wherein said closed-loop speed compensation factor is equal to a prior closed-loop speed compensation factor when said enable is not flagged.

14. A method of controlling a speed of a vehicle using a cruise control system, comprising:

determining an open-loop speed compensation factor;

calculating a closed-loop speed compensation factor;

determining a throttle area based on said open-loop speed compensation factor and said closed-loop speed compensation factor; and

operating a throttle based on said throttle area.

15. The method of claim 14, further comprising adjusting said throttle area based on barometric pressure.

16. The method of claim 14, wherein said open-loop speed compensation factor is based on a vehicle speed and a manifold air flow.

17. The method of claim 16, wherein said open-loop speed compensation factor is determined from a look-up table.

18. The method of claim 14, wherein said closed-loop speed compensation factor is based on an integral term and a proportional term.

19. The method of claim 18, wherein said proportional term is determined based on a proportional coefficient and an error.

20. The method of claim 19, wherein said proportional coefficient is determined from a look-up table based on a vehicle speed and a manifold air flow.

21. The method of claim 19, wherein said error is based on a cruise control mode.

22. The method of claim 21, wherein when said cruise control mode is engaged, said error is a difference between a vehicle speed and a cruise speed.

23. The method of claim 21, wherein when said cruise control mode is one of a group comprising acceleration from engaged and coast, said error is a sum of a speed error and an acceleration error.

24. The method of claim 21, wherein when said cruise control mode is overspeed resume, said error is a difference between a speed error and an acceleration error.

25. The method of claim 21, wherein when said cruise control mode is one of a group comprising acceleration standby enabled and resume, said error is equal to an acceleration error.

26. The method of claim 21, wherein when said cruise control mode is one of a group comprising tap-up and tap-down, said error is equal to a sum of a speed error and a timed acceleration error.

27. The method of claim 14, further comprising determining whether an enable is flagged, wherein said closed-loop speed compensation factor is equal to a prior closed-loop speed compensation factor when said enable is not flagged.

28. A method of controlling a speed of a vehicle using a cruise control system, comprising:

determining an acceleration error and a speed error of said vehicle when operating in a cruise control mode;

calculating a closed-loop speed compensation factor based on said acceleration error and said speed error;

determining a throttle area based on said closed-loop speed compensation factor; and

operating a throttle based on said throttle area.

29. The method of claim 28, further comprising determining an open-loop speed compensation factor based on a vehicle speed and a manifold air flow, wherein said throttle area is further based on said open-loop speed compensation factor.

30. The method of claim 28, further comprising adjusting said throttle area based on barometric pressure.

31. The method of claim 29, wherein said open-loop speed compensation factor is determined from a look-up table.

32. The method of claim 28, wherein said closed-loop speed compensation factor includes a proportional term and an integral term.

33. The method of claim 32, wherein said proportional term is determined based on a proportional coefficient and an error.

34. The method of claim 33, wherein said proportional coefficient is determined from a look-up table based on a vehicle speed and a manifold air flow.

35. The method of claim 28, wherein said acceleration error is based on said cruise control mode.

36. The method of claim 35, wherein when said cruise control mode is engaged, said acceleration error is zero and said speed error is a difference between a vehicle speed and a cruise speed.

37. The method of claim 35, wherein when said cruise control mode is one of a group comprising acceleration from engaged, overspeed resume, acceleration from standby enabled, resume and coast, said acceleration error is a difference between an actual acceleration and a desired acceleration.

38. The method of claim 35, wherein when said cruise control mode is one of a group comprising tap-up and tap-down, said acceleration error is based on a timed value of a difference between an actual acceleration and a desired acceleration.

39. The method of claim 28, further comprising determining whether an enable is flagged, wherein said closed-loop speed compensation factor is equal to a prior closed-loop speed compensation factor when said enable is not flagged.